Format No: CP/TF/01

TEST REPORT ON COARSE AGGREGATES

Lab ID	:	**CP-2018-07-09-09** **Date: 12-07-2018**
Customer	:	Assistant Executive Engineer, Yelahanka Satellite town Sub division, BBMP, Bangalore.
Address	:	Yelahanka Satellite town Sub division, BBMP, Bangalore.
Project Name	:	Improvements and asphalting to balance roads at Thirumalanagara and Muneshwara layout in ward No.03
Agency	:	Sri. H.S.Palakshamurty No.1, 2nd Main, BDA layout, Pattegara Palya, Prashanthnagara, Bangalore
Customer Reference	:	EE(YNK.D)E-PMT-16/W.O/000134/2017-18
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	09-07-2018
Sample ID No	:	2018-07-09-09 /02
Sample Type/ Size	:	20mm down size coarse aggregate
Reference to BIS codes	:	IS: 383:2016 (Specification for Coarse and fine Aggregates) IS: 2386 :1963(Part - 1,3,4) RA2011 IS 2386 Part 1: Particle Size and Shape IS 2386 Part 3: Specific gravity, Density, Voids,Water Absorption IS 2386 Part 4: Mechanical Properties
Date of test	:	09-07-2018

SIEVE ANALYSIS (PARTICLE SIZE DISTRIBUTION) OF 20MM DOWN COARSE AGGREGATE:

Total weight taken : **5000** **grams**

Sample No.	Sieve No.	Weight Retained in gms	Cumulative Weight Retained in gms	% Cumulative Weight Retained	% Passing	Required as per IS 383:2016
1	40 mm	0	0	0	100	100
2	20 mm	245	245	4.9	95.1	90-100
3	10 mm	2560	2805	56.1	43.9	25-55
4	4.75 mm	2033	4838	96.8	3.2	0-10
5	Pan	162	5000	100	0	–

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TEST REPORT OF FINE AGGREGATE

Lab ID : CP-2018-07-09-09 **Date: 12-07-2018**

Customer : Assistant Executive Engineer, Yelahanka Satellite town Sub division, BBMP, Bangalore.

Address : Yelahanka Satellite town Sub division, BBMP, Bangalore.

Project Name : Improvements and asphalting to balance roads at Thirumalanagara and Muneshwara layout in ward No.03

Agency : Sri. H.S.Palakshamurty No.1, 2nd Main, BDA layout, Pattegara Palya, Prashanthnagara, Bangalore

Customer's Reference : EE(YNK.D)E-PMT-16/W.O/000134/2017-18

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 09-07-2018

Sample ID No : 2018-07-09-09 /03

Sample Type : Fine Aggregate

Reference to BIS codes : IS 383 : 2016 (Specification for Coarse and fine Aggregates)
IS: 2386 :1963(Part - 1, 3) RA2012
IS 2386 Part 1: Particle Size and Shape
IS 2386 Part 3: Specific gravity, Density, Voids,Water Absorption

Date of test : 09-07-2018

Total weight taken : 1000 grams

Sl.no	Sieve Size	Weight Retained (gms)	Cumulative Weight Retained (gms)	% Cumulative Weight Retained	% Passing	Requirement as per IS 383:2016			
						Grading Zone I	Grading Zone II	Grading Zone III	Grading Zone IV
1	10 mm	0	0	0.0	100.0	100	100	100	100
2	4.75 mm	21	21	2.1	97.9	90-100	90-100	90-100	95-100
3	2.36 mm	185	206	20.6	79.4	60-95	75-100	85-100	95-100
4	1.18 mm	201	407	40.7	59.3	30-70	55-90	75-100	90-100
5	600 micron	168	575	57.5	42.5	15-34	35-59	60-79	80-100
6	300 micron	229	804	80.4	19.6	5-20	8-30	12-40	15-50
7	150 micron	153	957	95.7	4.3	0-10	0-10	0-10	0-15
8	Pan	43	1000	100.0	0.0	---	---	---	---

Result :The tested Sample Conforms to Grading Zone II

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TEST REPORT OF PHYSICAL PROPERTIES OF CEMENT - 53 Grade

Lab ID	:	**CP-2018-07-09-09** **Date: 12-07-2018**
Customer	:	Assistant Executive Engineer, Yelahanka Satellite town Sub division, BBMP, Bangalore.
Address	:	Yelahanka Satellite town Sub division, BBMP, Bangalore.
Project Name	:	Improvements and asphalting to balance roads at Thirumalanagara and Muneshwara layout in ward No.03
Agency	:	Sri. H.S.Palakshamurty No.1, 2nd Main, BDA layout, Pattegara Palya, Prashanthnagara, Bangalore
Customer's Reference	:	EE(YNK.D)E-PMT-16/W.O/000134/2017-18
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	09-07-2018
Sample ID No	:	2018-07-09-09 /01
Sample Type	:	Birla Super 53grade
Reference to BIS codes	:	IS 12269 : 2013, 53 Grade Ordinary Portland cement Specification , IS 4031 (Part 1,2 3,4,5, 6,11):1988 IS 4031 Part 1 DETERMINATION OF FINENESS BY DRY SIEVING, Clause 4.4 IS 4031 Part 2, Determination of Fineness by Blaine Air Penneability Method, Clause 5 IS 4031 Part 3, Determination of Soundness, Clause 5,Clause 6 IS 4031 Part 4, Determination of Consistency of Standard Cement Paste, Clause 5 IS 4031 Part 5, Determination of Initial & Final Setting Time, Clause 5 IS 4031 Part 11,DETERMINATION OF DENSITY , Clause 6
Date of test	:	10-07-2018
Environmental Conditions during test	:	Temperature: 26°C Humidity: 72%

SLNo.	Physical properties	Results	Requirement as per IS 12269: 2013
1	Fineness by dry sieving (%)	1.95	–
2	Finess by Air permeablity method (m^2/kg,Min)	285.4	225m^2/kg, Min
3	Density (gm/cc)	3.12	–
4	Standard Consistency (%)	29.5%	Not specified
5	Initial Setting time	145 minutes	Not less than 30 minutes
6	Final Setting time	240 minutes	Not more than 600 minutes
7	Soundness (Le Chatelier's Method)	1.5mm	Not more than 10 mm

Note:

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PHYSICAL REQUIREMENTS FOR COARSE AGGREGATE FOR DENSE BITUMINOUS MACADAM

Lab ID	:	**CP-RW-2018-07-31-07** **Date: 03-08-2018**
Customer	:	Assistant Executive Engineer, Yelahanka Satellite town Sub division, BBMP, Bangalore.
Address	:	Yelahanka Satellite town Sub division, BBMP, Bangalore.
Project Name	:	Improvements and asphalting to balance roads at Thirumalanagara and Muneshwara layout in ward No.03
Agency	:	Sri. H.S.Palakshamurthy No.1, 2nd Main, BDA layout, Pattegara Palya, Prashanthnagara, Bangalore
Customer Reference	:	EE(YNK.D)E-PMT-16/W.O/000134/2017-18
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	31-07-2018
Sample ID No	:	2018-07-31-07/01
Type of Mix	:	DBM (Dense Bituminous Macadam)
Date of test	:	31-07-2018

Table 500-6 : Physical Requirements fo Coarse Aggregate for Dense Bituminous Macadam

Property	Test	Result	Specification	Method of Test
Partical Shape	Flakiness Index	12.4	Combined Flakiness & Elongation Index for DBM is Maximum 35%	IS:2386 Part I
	Elongation Index	11.8		
Strength	Aggregate Impact Value	22.2	Maximum 30%	IS:2386 Part IV
Specific gravity	Specific gravity	2.65	Maximum 2.7	IS:2386 Part III
Water Absorption	Water Absorption	0.16	Maximum 2%	IS:2386 Part III

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TESTS RESULTS ON STABILITY OF MIX

Lab ID	:	**CP-RW-2018-07-31-07** **Date: 03-08-2018**
Customer	:	Assistant Executive Engineer, Yelahanka Satellite town Sub division, BBMP, Bangalore.
Address	:	Yelahanka Satellite town Sub division, BBMP, Bangalore.
Project Name	:	Improvements and asphalting to balance roads at Thirumalanagara and Muneshwara layout in ward No.03
Agency	:	Sri. H.S.Palakshamurthy No.1, 2nd Main, BDA layout, Pattegara Palya, Prashanthnagara, Bangalore
Customer Reference	:	EE(YNK.D)E-PMT-16/W.O/000134/2017-18
Source of Sample	:	Hot Mix Plant, Bangalore
Sample Condition	:	Satisfactory
Date of Receipt	:	31-07-2018
Sample ID No	:	2018-07-31-07/01
Type of Mix	:	DBM (Dense Bituminous Mecadam)
Date of test	:	31-07-2018

The results of the tests conducted on the Dense Bituminous Macadam mix sample are as follow

Sl.No	Particulars of observations	TEST 1	TEST 2	Secified limits as per MORTH specification table 500-11
1	Marshal Stability at 60°C, KN	11.30	11.43	9KN(Min)
2	Marshal flow at 60°C, mm	3.66	3.74	2-4
3	Percent air Voids	4.52	4.58	3-5
4	Percent Voids in mineral Aggregate(VMA %)	14.62	14.67	13-15
5	Percent Voids filled with Bitumen(VFB %)	70.13	70.28	65-75
6	Density, g/cc	2.43	2.41	–

Note:-
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TEST REPORT OF AGGEGRATE STRIPPING VALUE OF ROAD AGGRGATE (IS:6241)

Lab ID	:	**CP-RW-2018-07-31-07** **Date: 03-08-2018**
Customer	:	Assistant Executive Engineer, Yelahanka Satellite town Sub division, BBMP, Bangalore.
Address	:	Yelahanka Satellite town Sub division, BBMP, Bangalore.
Project Name	:	Improvements and asphalting to balance roads at Thirumalanagara and Muneshwara layout in ward No.03
Agency	:	Sri. H.S.Palakshamurthy No.1, 2nd Main, BDA layout, Pattegara Palya, Prashanthnagara, Bangalore
Customer Reference	:	EE(YNK.D)E-PMT-16/W.O/000134/2017-18
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	31-07-2018
Sample ID No	:	2018-07-31-07/01
Type of Mix	:	DBM(Dense Bitumnous Macadam)
Date of test	:	31-07-2018

Type of Binder	:	60/70
% of Binder Used	:	5.0%
Weight of Aggregate	:	200.0 gm
Weight of Binder	:	10.0 gm
Temperature of water bath	:	40°C

No of test	Retained Stripping Percentage	Stripping Percentage	Average Retained Stripping Percentage	Secified limits as per MORTH specification table 500-8
1	98.0	2.0	98.2	Minimum Retained Coating 95%
2	98.5	1.5		
3	98.0	2.0		

Note:-
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TEST RESULTS OF BITUMEN BINDER CONTENT AND GRADATION FOR DBM (IS 2386:(Part 1) 1963 (RA2011)

Lab ID	:	**CP-RW-2018-08-18-04** **Date: 20-08-2018**
Customer	:	Assistant Executive Engineer, Yelahanka Satellite town Sub division, BBMP, Bangalore.
Address	:	Yelahanka Satellite town Sub division, BBMP, Bangalore.
Project Name	:	Improvements and asphalting to balance roads at Thirumalanagara and Muneshwara layout in ward No.03
Agency	:	Sri. H.S.Palakshamurthy No.1, 2nd Main, BDA layout, Pattegara Palya, Prashanthnagara, Bangalore
Customer Reference	:	EE(YNK.D)E-PMT-16/W.O/000134/2017-18
Source of Sample	:	Sample supplied by Agency
Date of Receipt	:	18-08-2018
Sample ID No	:	2018-08-18-04/01
Type of Mix	:	DBM (Dense Bituminous Macadam)
Date of test	:	18-08-2018

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	A	500	498
2	Weight of the sample After extraction	B	477	474
3	Bitumen percentage	$\frac{A-B}{A} \times 100$	4.6	4.8
4	Average percentage	%	4.7	

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TEST RESULTS OF GRADATION FOR BC
IS 2386 (Part 1) 1963 (RA 2007)

Lab ID	:	**CP-RW-2018-08-07-03** **Date: 08-08-2018**
Customer	:	Assistant Executive Engineer, Yelahanka Satellite town Sub division, BBMP, Bangalore.
Address	:	Yelahanka Satellite town Sub division, BBMP, Bangalore.
Project Name	:	Improvements and asphalting to balance roads at Thirumalanagara and Muneshwara layout in ward No.03
Agency	:	Sri. H.S.Palakshamurthy No.1, 2nd Main, BDA layout, Pattegara Palya, Prashanthnagara, Bangalore
Customer Reference	:	EE(YNK.D)E-PMT-16/W.O/000134/2017-18
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	07-08-2018
Sample ID No	:	2018-08-07-03/01
Type of Mix	:	BC-Plant (Bituminous Concrete)
Date of test	:	07-08-2018
Oven Dry Weight	:	5000 Grams

IS Sieve Size (mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Secified limits as per MORTH specification table 500-17(grading-2)
19	0	0	0.0	100.0	100
13.2	72	72	1.4	98.6	90-100
9.5	801	873	17.5	82.5	70-88
4.75	1005	1878	37.6	62.4	53-71
2.36	389	2267	45.3	54.7	42-58
1.18	422	2689	53.8	46.2	34-48
0.6	573	3262	65.2	34.8	26-38
0.3	551	3813	76.3	23.7	18-28
0.15	455	4268	85.4	14.6	12-20
0.075	324	4592	91.8	8.2	4-10
PAN	408	5000	100	0.0	0

Note:-
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PHYSICAL REQUIREMENTS FOR COARSE AGGREGATE FOR BITUMINOUS CONCRETE

Lab ID	:	**CP-RW-2018-08-07-03** **Date: 11-08-2018**
Customer	:	Assistant Executive Engineer, Yelahanka Satellite town Sub division, BBMP,
Address	:	Yelahanka Satellite town Sub division, BBMP, Bangalore.
Project Name	:	Improvements and asphalting to balance roads at Thirumalanagara and Muneshwara layout in ward No.03
Agency	:	Sri. H.S.Palakshamurthy No.1, 2nd Main, BDA layout, Pattegara Palya, Prashanthnagara, Bangalore
Customer Reference	:	EE(YNK.D)E-PMT-16/W.O/000134/2017-18
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	07-08-2018
Sample ID No	:	2018-08-07-03/01
Type of Mix	:	BC (Bituminous Concrete)
Date of test	:	07-08-2018

Table 500-16 : Physical Requirements fo Coarse Aggregate for Bituminous Concrete

Property	Test	Result	Specification	Method of Test
Partical Shape	Flakiness Index	9.8	Combined Flakiness & Elongation Index for BC is Maximum 35%	IS:2386 Part I
	Elongation Index	10.4		
Strength	Aggregate Impact Value	21.5	Maximum 24%	IS:2386 Part IV
Specific gravity	Specific gravity	2.57	Maximum 2.7	IS:2386 Part III
Water Absorption	Water Absorption	0.21	Maximum 2%	IS:2386 Part III

Note:-
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TEST REPORT OF AGGEGRATE STRIPPING VALUE OF ROAD AGGRGATE (IS:6241)

Lab ID	:	**CP-RW-2018-08-07-03** **Date: 11-08-2018**
Customer	:	Assistant Executive Engineer, Yelahanka Satellite town Sub division, BBMP, Bangalore.
Address	:	Yelahanka Satellite town Sub division, BBMP, Bangalore.
Project Name	:	Improvements and asphalting to balance roads at Thirumalanagara and Muneshwara layout in ward No.03
Agency	:	Sri. H.S.Palakshamurthy No.1, 2nd Main, BDA layout, Pattegara Palya, Prashanthnagara, Bangalore
Customer Reference	:	EE(YNK.D)E-PMT-16/W.O/000134/2017-18
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	07-08-2018
Sample ID No	:	2018-08-07-03/01
Type of Mix	:	BC(Bitumenous Concrete)
Date of test	:	07-08-2018

Type of Binder	:	60/70
% of Binder Used	:	5.0%
Weight of Aggregate	:	200.0 gm
Weight of Binder	:	10.0 gm
Temperature of water bath	:	40°C

No of test	Retained Stripping Percentage	Stripping Percentage	Average Retained Stripping Percentage	Secified limits as per MORTH specification table 500-S
1	98.5	1.5	98.3	Minimum Retained Coating 95%
2	98.5	1.5		
3	98.0	2.0		

Note:-
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TESTS RESULTS ON STABILITY OF MIX

Lab ID	:	**CP-RW-2018-08-07-03** **Date: 11-08-2018**
Customer	:	Assistant Executive Engineer, Yelahanka Satellite town Sub division, BBMP, Bangalore.
Address	:	Yelahanka Satellite town Sub division, BBMP, Bangalore.
Project Name	:	Improvements and asphalting to balance roads at Thirumalanagara and Muneshwara layout in ward No.03
Agency	:	Sri. H.S.Palakshamurthy No.1, 2nd Main, BDA layout, Pattegara Palya, Prashanthnagara, Bangalore
Customer Reference	:	EE(YNK.D)E-PMT-16/W.O/000134/2017-18
Source of Sample	:	Hot Mix Plant, Bangalore
Sample Condition	:	Satisfactory
Date of Receipt	:	07-08-2018
Sample ID No	:	2018-08-07-03/01
Type of Mix	:	BC (Bituminous Concrete)
Date of test	:	07-08-2018

The results of the tests conducted on the Bituminous Concrete mix sample are as follow

Sl.No	Particulars of observations	TEST 1	TEST 2	Secified limits as per MORTH specification table 500-11
1	Marshal Stability at 60°C, KN	11.19	11.33	10KN(min)
2	Marshal flow at 60°C, mm	3.52	3.61	2-4
3	Percent air Voids	4.82	4.73	3-5
4	Percent Voids in mineral Aggregate(VMA %)	14.28	14.16	13-15
5	Percent Voids filled with Bitumen(VFB %)	71.87	70.63	65-75
6	Density, g/cc	2.25	2.26	–

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TEST RESULTS OF GRADATION FOR GSB
(IS 2386:(Part 1) 1963 (RA2011)

Lab ID	:	**CP-RW-2018-07-13-13** **Date: 16-07-2018**
Customer	:	Assistant Executive Engineer, Yelahanka Satellite town Sub division, BBMP, Bangalore.
Address	:	Yelahanka Satellite town Sub division, BBMP, Bangalore.
Project Name	:	Improvements and asphalting to balance roads at Thirumalanagara and Muneshwara layout in ward No.03
Agency	:	Sri. H.S.Palakshamurthy No.1, 2nd Main, BDA layout, Pattegara Palya, Prashanthnagara, Bangalore
Customer Reference	:	EE(YNK.D)E-PMT-16/W.O/000134/2017-18
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	13-07-2018
Sample ID No	:	2018-07-13-13/01
Type of Mix	:	GSB (Granular Sub Base)
Date of test	:	13-07-2018
Oven Dry Weight	:	10000 Grams

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	% Cumulative Weight Retained	% Passing	Spec. Limit Vide Table 400.1 MORTH Specification
75	0	0	0	100	100
53	867	867	8.67	91.33	80-100
26.5	1692	2559	25.59	74.41	55-90
9.5	1305	3864	38.64	61.36	35-65
4.75	1467	5331	53.31	46.69	25-55
2.36	1698	7029	70.29	29.71	20-40
0.425	1732	8761	87.61	12.39	10-25
0.075	955	9716	97.16	2.84	0-5

TESTS ON FILLER SCREEN MATERIALS

Sl no	Particulars	Test results	Spec.Limit Vide Table
1	Liquid Limit, %	22.05%	Maximum 25
2	Plasticity index, %	Non plastic	Maximum 6

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Certificate No.: TC- 5548

DETERMINATION OF FLAKINESS INDEX AND ELONGATION INDEX OF COARSE AGGREGATE(IS 2386 (Part 1) 1963 (RA 2007)

Lab ID	:	**CP-RW-2018-07-18-10** **Date: 20-07-2018**
Customer	:	Assistant Executive Engineer, Yelahanka Satellite town Sub division, BBMP, Bangalore.
Address	:	Yelahanka Satellite town Sub division, BBMP, Bangalore.
Project Name	:	Improvements and asphalting to balance roads at Thirumalanagara and Muneshwara layout in ward No.03
Agency	:	Sri. H.S.Palakshamurthy No.1, 2nd Main, BDA layout, Pattegara Palya, Prashanthnagara, Bangalore
Customer Reference	:	EE(YNK.D)E-PMT-16/W.O/000134/2017-18
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	18-07-2018
Sample ID No	:	2018-07-18-10/01
Type of Mix	:	Coarse Aggregate for WMM (Wet Mix Macadam)
Date of test	:	18-07-2018

Result:

Index	Percentage of Flakiness and Elongation Index	Secified limits as per MORTH specification table 400-12
Flakiness Index	9.5%	Combined Flakiness & Elongation Index for WMM is Maximum 35%
Elongation Index	10.7%	
Combined Flakiness and Elongation Index for WMM	20.2%	

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TEST REPORT ON BITUMEN

Format No: CP/TF/01

Lab ID	:	**CP-2018-07-24-15**
Customer	:	Assistant Executive Engineer, Yelahanka Satellite town Sub division, BBMP, Bangalore.
Address	:	Yelahanka Satellite town Sub division, BBMP, Bangalore.
Project Name	:	Improvements and asphalting to balance roads at Thirumalanagara and Muneshwara layout in ward No.03
Agency	:	Sri. H.S.Palakshamurthy No.1, 2nd Main, BDA layout, Pattegara Palya, Prashanthnagara, Bangalore
Customer's Reference	:	EE(YNK.D)E-PMT-16/W.O/000134/2017-18
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	24-07-2018
Sample ID No	:	2018-07-24-15/01
Sample Type	:	Bitumen
Reference to BIS codes	:	IS: 1201-1220(1978) (Reaffirmed-2004)
Date of test	:	24-07-2018

Date: 26-07-2018

Test Results

Sl.no	Name of Test	Result	Requirements as per IS:73-2013
1	Penetration at 25°C , in 1/10th mm	67	60 to 70
2	Softening Point, °C	50.8	Min. 40°C
3	Ductility, cm	89	Min. 75cm
4	Flash point, °C	233	Min. 220°C
	Fire point, °C	256	

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Format No: CP/TF/01

TEST REPORT OF PRECAST COVER SLAB

Lab ID	:	**CP-2018-07-30-13**
Customer	:	Assistant Executive Engineer, Yelahanka Satellite town Sub division, BBMP, Bangalore.
Address	:	Yelahanka Satellite town Sub division, BBMP, Bangalore.
Project Name	:	Improvements and asphalting to balance roads at Thirumalanagara and Muneshwara layout in ward No.03
Agency	:	Sri. H.S.Palakshamurty No.1, 2nd Main, BDA layout, Pattegara Palya, Prashanthnagara, Bangalore
Customer's Reference	:	EE(YNK.D)E-PMT-16/W.O/000134/2017-18
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	30-07-2018
Sample ID No	:	2018-07-30-13 /05
Sample Type /Size	:	100mm thick Precast Cover Slab
Reference to BIS codes	:	IS: 516 - 1959 Methods of Tests for Strength of Concrete
Date of test	:	30/07/2018

Date: 02-08-2018

Sl. No.	Identification Mark	Diameter of the core	Height of the core	Weight of the core	Area	Failure Load	Core Compressive strength	Corrected Cylinder Compressive strength	Equivalent Cube Compressive strength
		(mm)	(mm)	(kg)	(Sq.mm)	(KN)	(N/mm^2)	(N/mm^2)	(N/mm^2)
1	Cover Slab-1	75.23	100.37	2.724	4444	96.4	21.7	20.2	25.2
2	Cover Slab-2	75.18	100.55	2.746	4438	95.1	21.4	19.9	24.9
3	Cover Slab-3	75.29	100.28	2.778	4451	94.8	21.3	19.8	24.8

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TEST REPORT ON PHYSICAL REQUIREMENTS OF SOLID CONCRETE BLOCKS

Lab ID	:	**CP-2018-07-23-15** **Date: 26-07-2018**
Customer	:	Assistant Executive Engineer, Yelahanka Satellite town Sub division, BBMP, Bangalore.
Address	:	Yelahanka Satellite town Sub division, BBMP, Bangalore.
Project Name	:	Improvements and asphalting to balance roads at Thirumalanagara and Muneshwara layout in ward No.03
Agency	:	Sri. H.S.Palakshamurty No.1, 2nd Main, BDA layout, Pattegara Palya, Prashanthnagara, Bangalore
Customer's Reference	:	EE(YNK.D)E-PMT-16/W.O/000134/2017-18
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	23-07-2018
Sample ID No	:	2018-07-23-15 /04(b)
Sample Type/Size	:	Solid concrete blocks of size (400X100X200)mm
Reference to BIS codes	:	IS : 2185 (Part 1) : 2005(RA 2010) Concrete Masonry Specification Part 1:Hollow and Solid Concrete Blocks (Dimensions -Annex-B, Clause 9.2 and 10 , Block density Annex -C Clause 9.3 and10, Compressive strength Annex -D Clause 9.4 and 10, Water absorption Annex -E Clause 9.5 and 10)
Date of test	:	23-07-2018

BLOCK DENSITY:

Sl. No.	Measurement of overall Dimensions of Individual Blocks			Overall Volume of the Block in Cubic Centimetres	Weight of Oven Dried Block in Kilograms to the nearest 10 Gram	Block Density in Kg/cum*10^6	Avg.Block Density in (Kg/cum)	As per IS 2185 (Part 1):2005 (RA 2010)
	Length	Breadth	Height					
	mm	mm	mm	(Cm^3)	Kg	Kg/m^3	Kg/m^3	
1	403	101	203	8263	19.850	2402.4	2342.8	Not less than 1800Kg/m^3
2	401	102	201	8221	18.980	2308.6		
3	402	101	203	8242	19.100	2317.3		

WATER ABSORPTION:

Sl. No.	Wet weight after water absorption	Dry weight (Oven dry)	Water Absorption	Avg.Water Absorption	As per IS 2185 (Part 1):2005 (RA 2010)
	kg	kg	%	%	
1	18.180	17.100	6.32	5.77	Shall not be more than 10% by mass
2	18.762	17.760	5.64		
3	19.120	18.150	5.34		

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Format No: CP/TF/01

TEST REPORT ON PHYSICAL REQUIREMENTS OF SOLID CONCRETE BLOCKS

Lab ID	:	**CP-2018-07-23-15**
Customer	:	Assistant Executive Engineer, Yelahanka Satellite town Sub division, BBMP, Bangalore.
Address	:	Yelahanka Satellite town Sub division, BBMP, Bangalore.
Project Name	:	Improvements and asphalting to balance roads at Thirumalanagara and Muneshwara layout in ward No.03
Agency	:	Sri. H.S.Palakshamurty No.1, 2nd Main, BDA layout, Pattegara Palya, Prashanthnagara, Bangalore
Customer's Reference	:	EE(YNK.D)E-PMT-16/W.O/000134/2017-18
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	23-07-2018
Sample ID No	:	2018-07-23-15 /04(a)
Sample Type/Size	:	Solid concrete blocks of size (400X200X200)mm
Reference to BIS codes	:	IS : 2185 (Part 1) : 2005(RA 2010) Concrete Masonry Specification Part 1:Hollow and Solid Concrete Blocks (Dimensions -Annex-B, Clause 9.2 and 10 , Block density Annex -C Clause 9.3 and10, Compressive strength Annex -D Clause 9.4 and 10, Water absorption Annex -E Clause 9.5 and 10)
Date of test	:	23-07-2018

Date: 26-07-2018

BLOCK DENSITY:

Sl. No.	Measurement of overall Dimensions of Individual Blocks			Overall Volume of the Block in Cubic Centimetres	Weight of Oven Dried Block in Kilograms to the nearest 10 Gram	Block Density in Kg/cum*10^6	Avg.Block Density in (Kg/cum)	As per IS 2185 (Part 1):2005 (RA 2010)
	Length	Breadth	Height					
	mm	mm	mm	(Cm^3)	Kg	Kg/m^3	Kg/m^3	
1	400	201	202	16241	34.250	2108.9	2128.1	Not less than 1800Kg/m^3
2	401	203	201	16362	34.520	2109.8		
3	400	200	200	16000	34.650	2165.6		

WATER ABSORPTION:

Sl. No.	Wet weight after water absorption	Dry weight (Oven dry)	Water Absorption	Avg.Water Absorption	As per IS 2185 (Part 1):2005 (RA 2010)
	kg	kg	%	%	
1	35.830	34.060	5.20	5.18	Shall not be more than 10% by mass
2	36.270	34.530	5.04		
3	36.480	34.640	5.31		

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Lab ID : CP-2018-07-23-15 **Date: 26-07-2018**

Sample ID No : 2018-07-23-15 /04(a)

COMPRESSIVE STRENGTH:

Sl. No.	Size of solid block		Area	Failure Load	Compressive strength	Average Compressive strength
	Length	Breadth				
	mm	mm	(mm^2)	(KN)	N/mm^2	(N/mm^2)
1	401	200	80200	325.8	4.1	4.0
2	401	201	80601	305.3	3.8	
3	400	202	80800	315.8	3.9	
4	402	202	81204	328.3	4.0	
5	401	203	81403	322.1	4.0	
6	400	200	80000	317.9	4.0	
7	401	201	80601	316.4	3.9	
8	402	201	80802	324.8	4.0	

As per IS Requirements (Table 2, Clause 5.1, 5.2 and 9.4)

Compressive strength		
Grade	Minimum average	Minimum Individual units.
C (5.0)	5.00 N/mm^2	4.00 N/mm^2
C (4.0)	4.00 N/mm^2	3.20 N/mm^2

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